FIG. 1 (Prior Art)

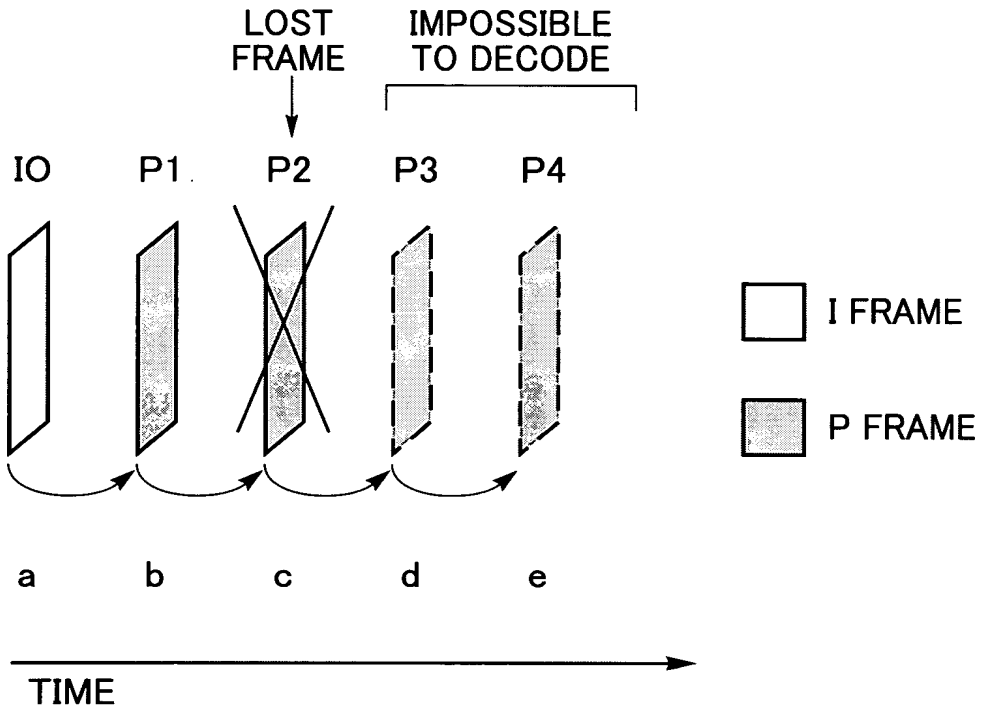


FIG. 2

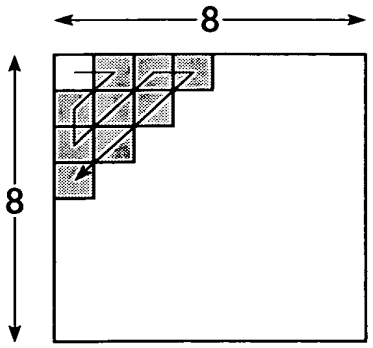

8
8

FIG. 3

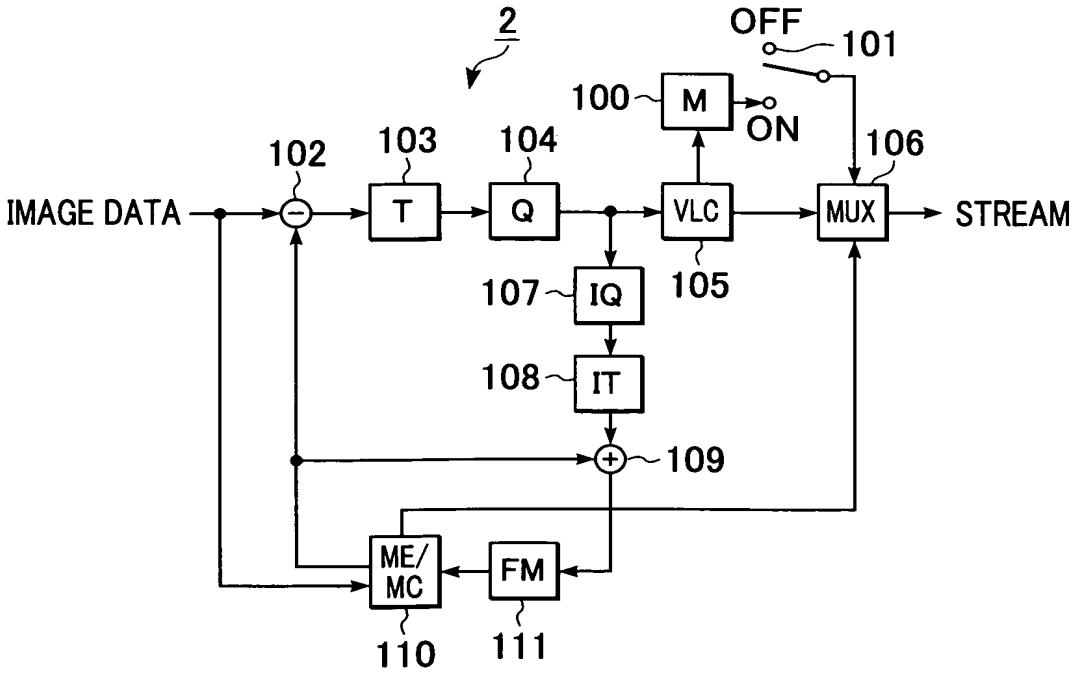

2
OFF
101
100
M
ON
106
102
103
104
IMAGE DATA
T
Q
VLC
MUX
STREAM
107
IQ
105
108
IT
109
ME/
MC
FM
110
111

FIG. 4

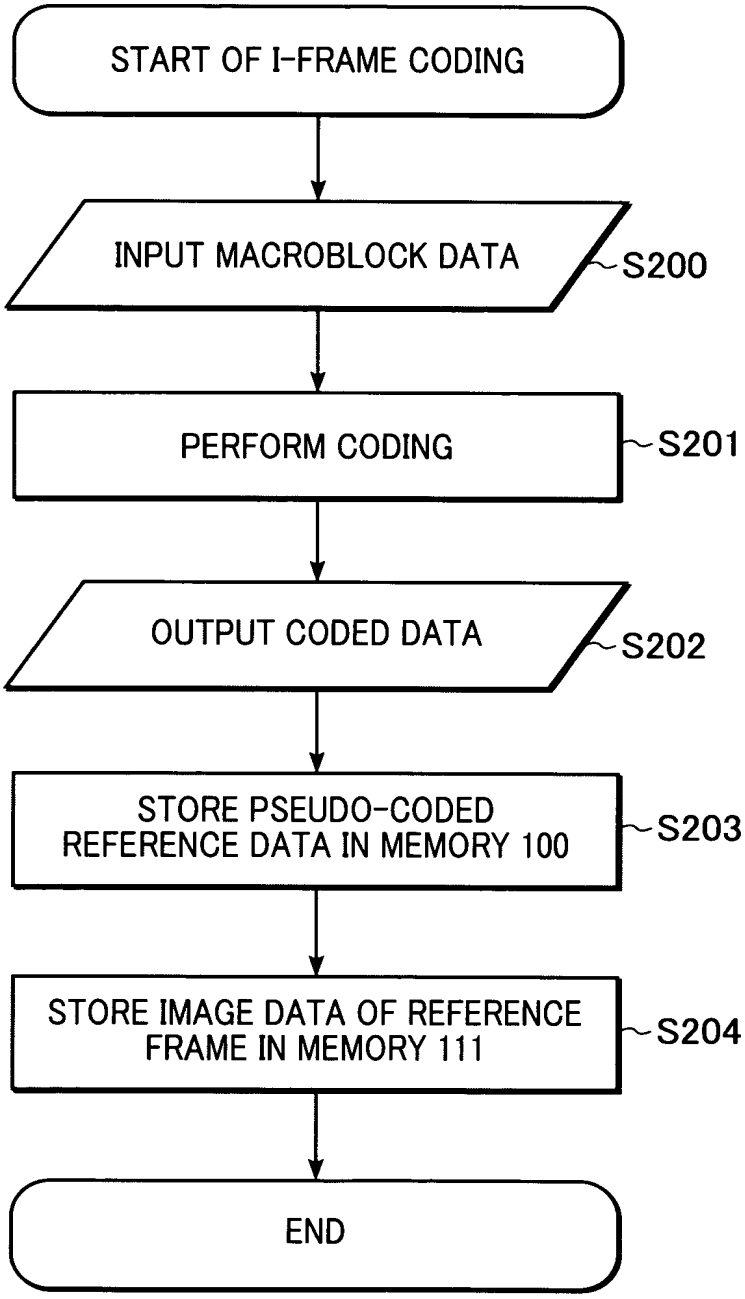

START OF I-FRAME CODING
INPUT MACROBLOCK DATA
S200
PERFORM CODING
S201
OUTPUT CODED DATA
S202
STORE PSEUDO-CODED REFERENCE DATA IN MEMORY 100
S203
STORE IMAGE DATA OF REFERENCE FRAME IN MEMORY 111
S204
END

FIG. 5

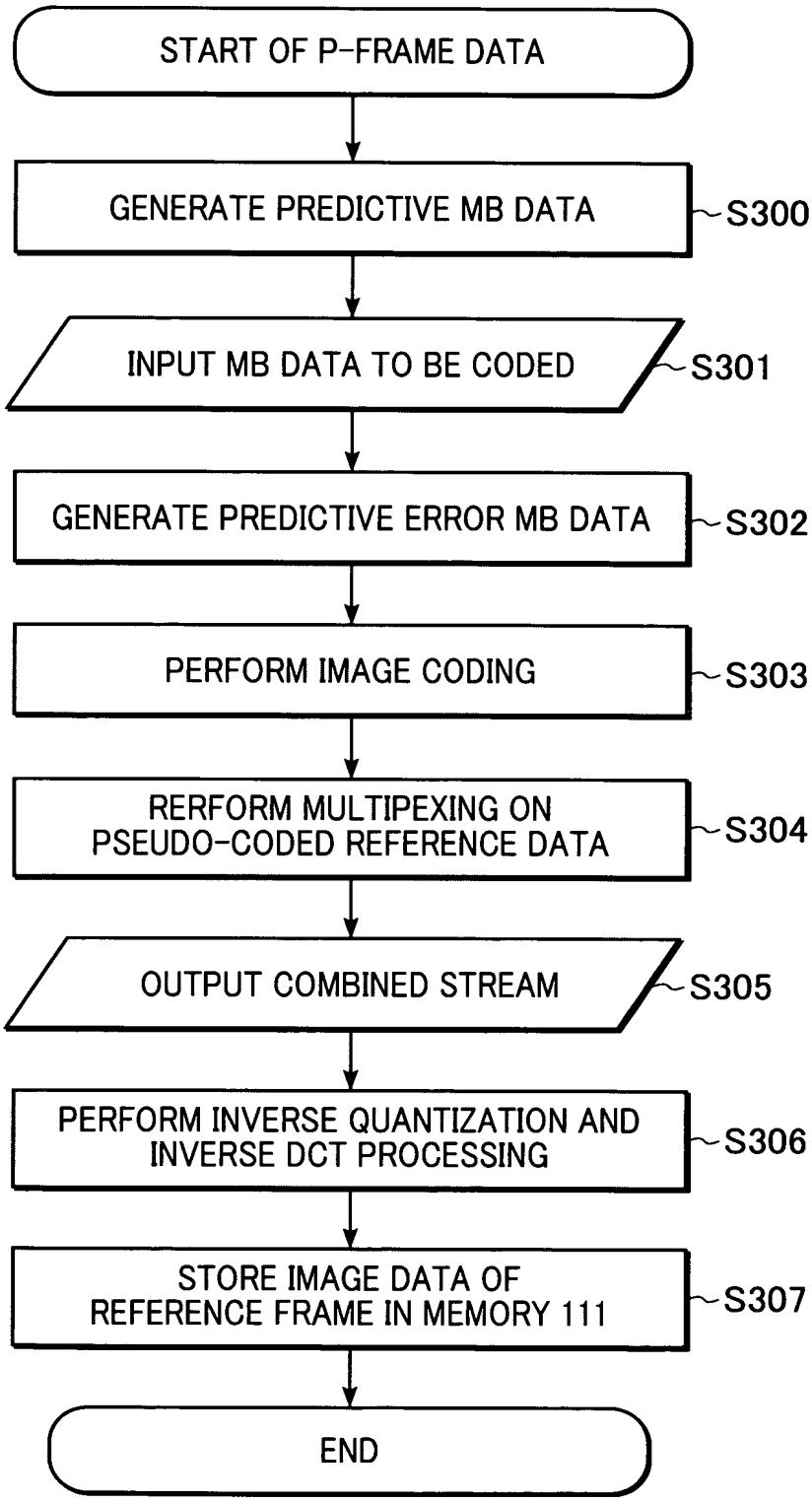

START OF P-FRAME DATA
GENERATE PREDICTIVE MB DATA
S300
INPUT MB DATA TO BE CODED
S301
GENERATE PREDICTIVE ERROR MB DATA
S302
PERFORM IMAGE CODING
S303
RERFORM MULTIPEXING ON PSEUDO-CODED REFERENCE DATA
S304
OUTPUT COMBINED STREAM
S305
PERFORM INVERSE QUANTIZATION AND INVERSE DCT PROCESSING
S306
STORE IMAGE DATA OF REFERENCE FRAME IN MEMORY 111
S307
END

FIG. 6

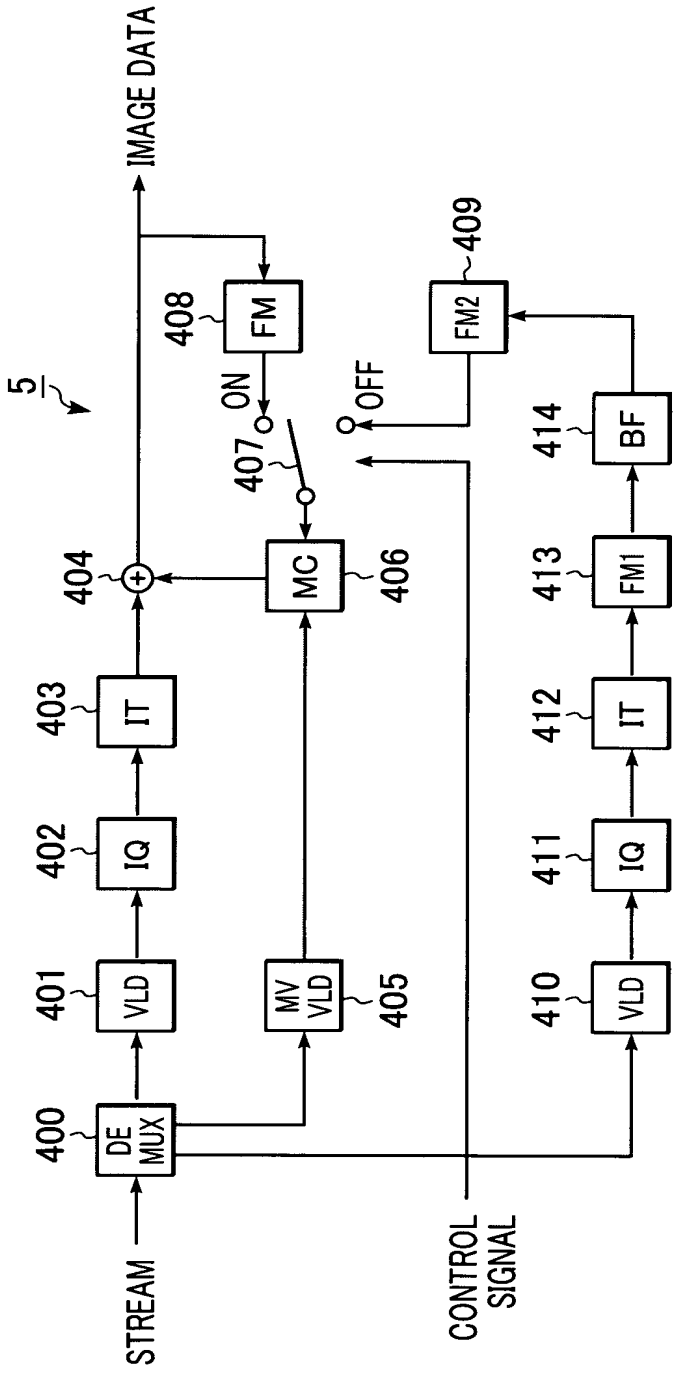

5
IMAGE DATA
STREAM
CONTROL SIGNAL
400
DE MUX
401
VLD
402
IQ
403
IT
404
MC
405
MV VLD
406
407
ON
OFF
408
FM
409
FM2
410
VLD
411
IQ
412
IT
413
FM1
414
BF

FIG. 7

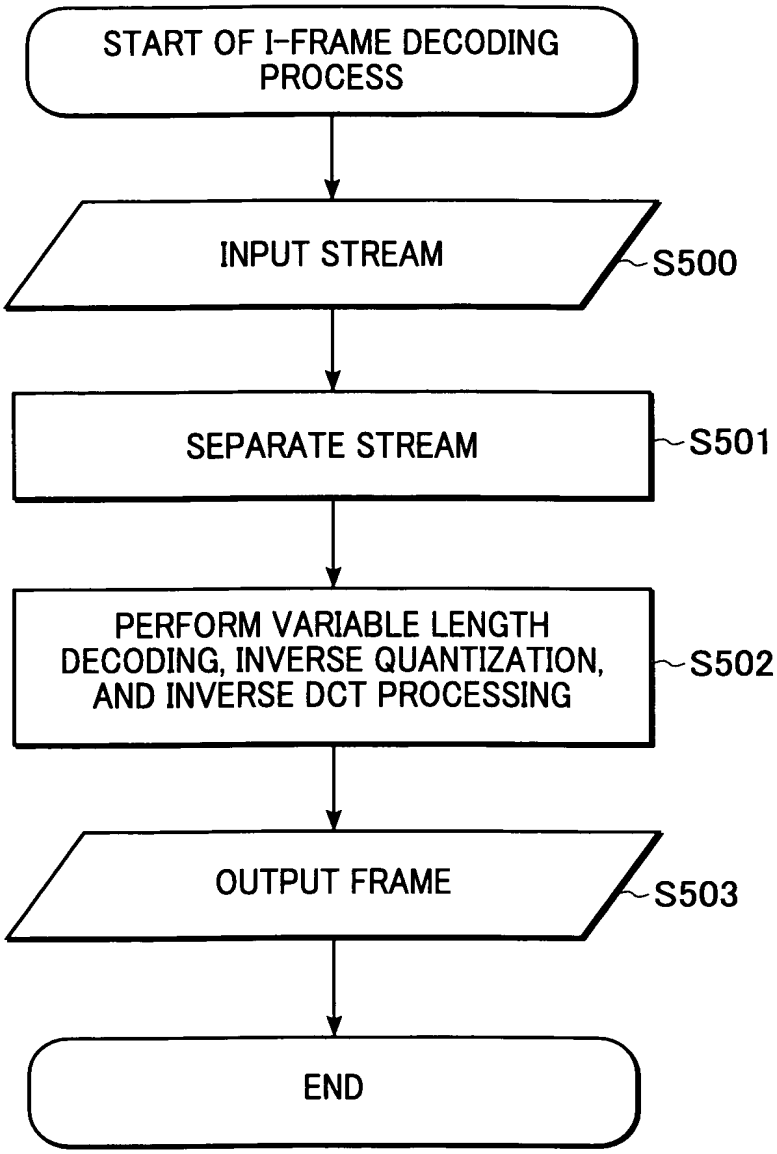

START OF I-FRAME DECODING PROCESS
INPUT STREAM
S500
SEPARATE STREAM
S501
PERFORM VARIABLE LENGTH DECODING, INVERSE QUANTIZATION, AND INVERSE DCT PROCESSING
S502
OUTPUT FRAME
S503
END

FIG. 8

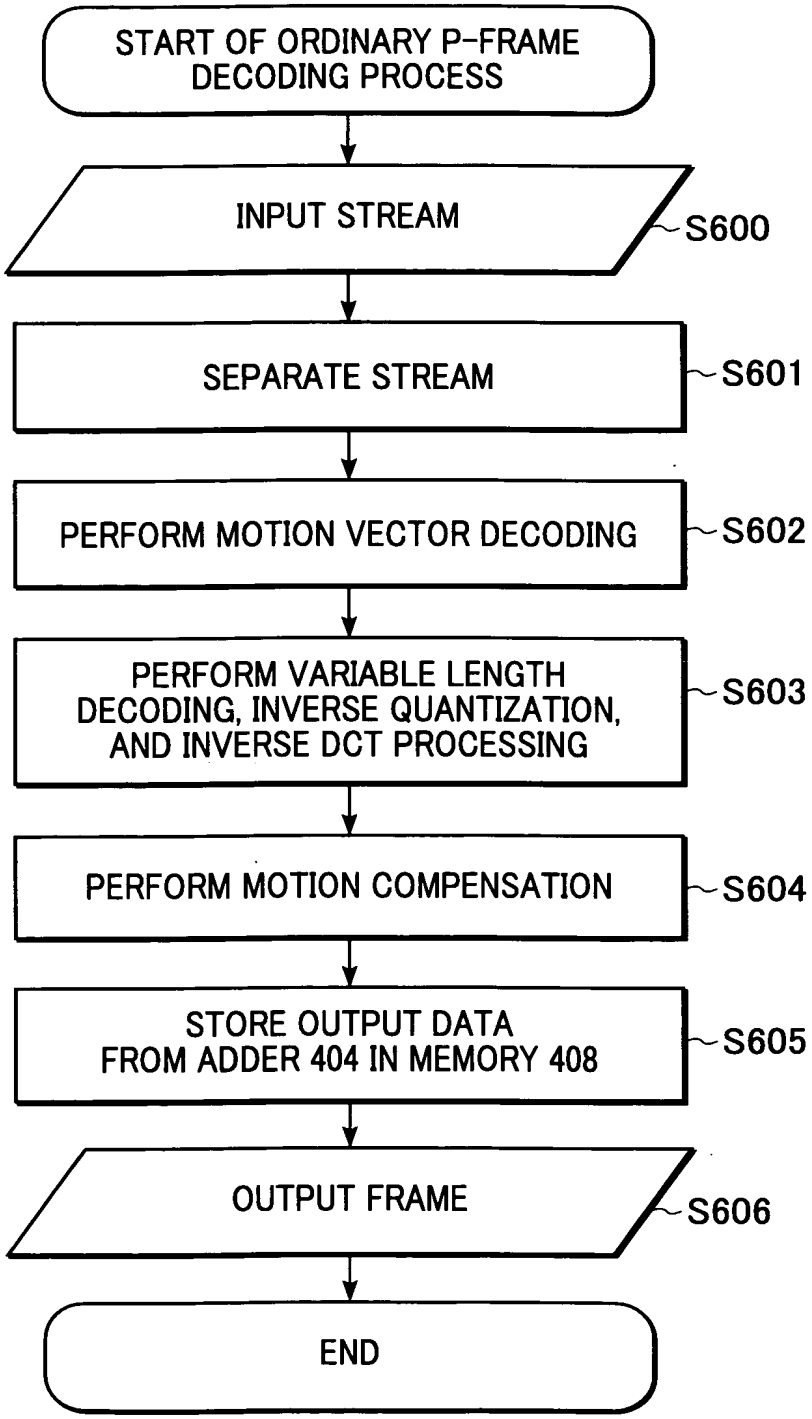

START OF ORDINARY P-FRAME DECODING PROCESS
INPUT STREAM
S600
SEPARATE STREAM
S601
PERFORM MOTION VECTOR DECODING
S602
PERFORM VARIABLE LENGTH DECODING, INVERSE QUANTIZATION, AND INVERSE DCT PROCESSING
S603
PERFORM MOTION COMPENSATION
S604
STORE OUTPUT DATA FROM ADDER 404 IN MEMORY 408
S605
OUTPUT FRAME
S606
END

FIG. 9

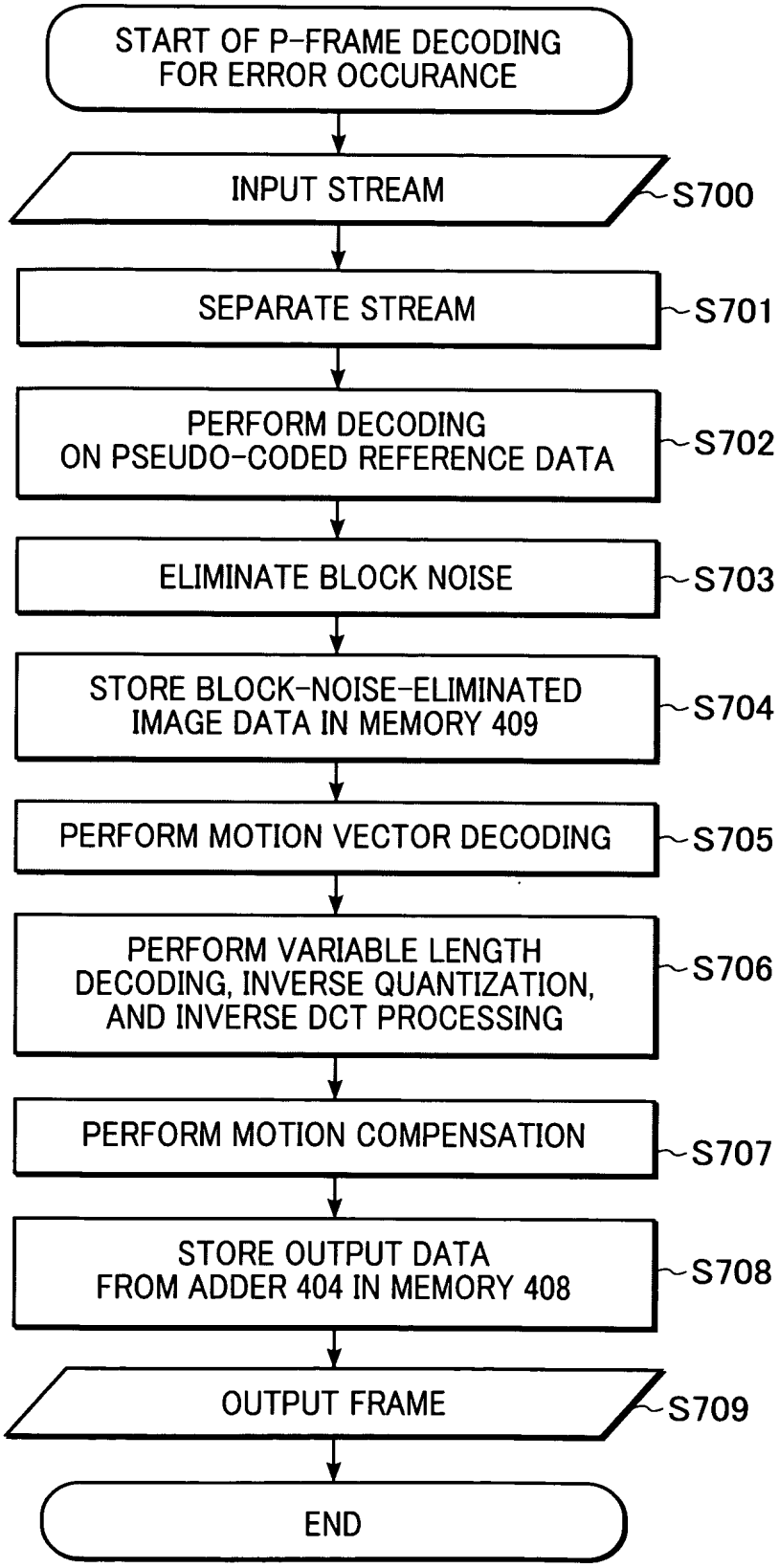

START OF P-FRAME DECODING FOR ERROR OCCURANCE
INPUT STREAM
S700
SEPARATE STREAM
S701
PERFORM DECODING ON PSEUDO-CODED REFERENCE DATA
S702
ELIMINATE BLOCK NOISE
S703
STORE BLOCK-NOISE-ELIMINATED IMAGE DATA IN MEMORY 409
S704
PERFORM MOTION VECTOR DECODING
S705
PERFORM VARIABLE LENGTH DECODING, INVERSE QUANTIZATION, AND INVERSE DCT PROCESSING
S706
PERFORM MOTION COMPENSATION
S707
STORE OUTPUT DATA FROM ADDER 404 IN MEMORY 408
S708
OUTPUT FRAME
S709
END

FIG. 10

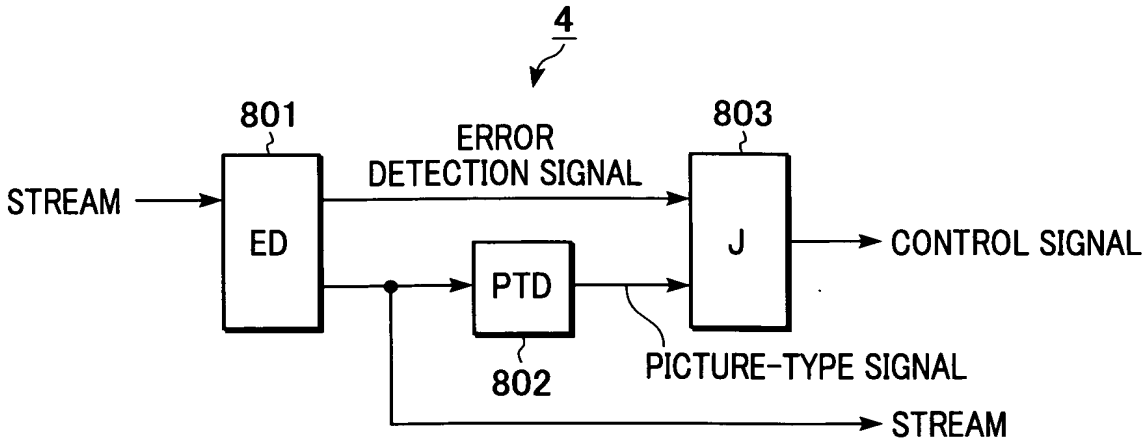


FIG. 11

ERROR DETECTION	DETECTED	DETECTED	NOT DETECTED	NOT DETECTED
PICTURE TYPE	I FRAME	OTHER THAN I FRAME	I FRAME	OTHER THAN I FRAME
CONTROL SIGNAL	–	OFF	ON	ON

FIG. 12

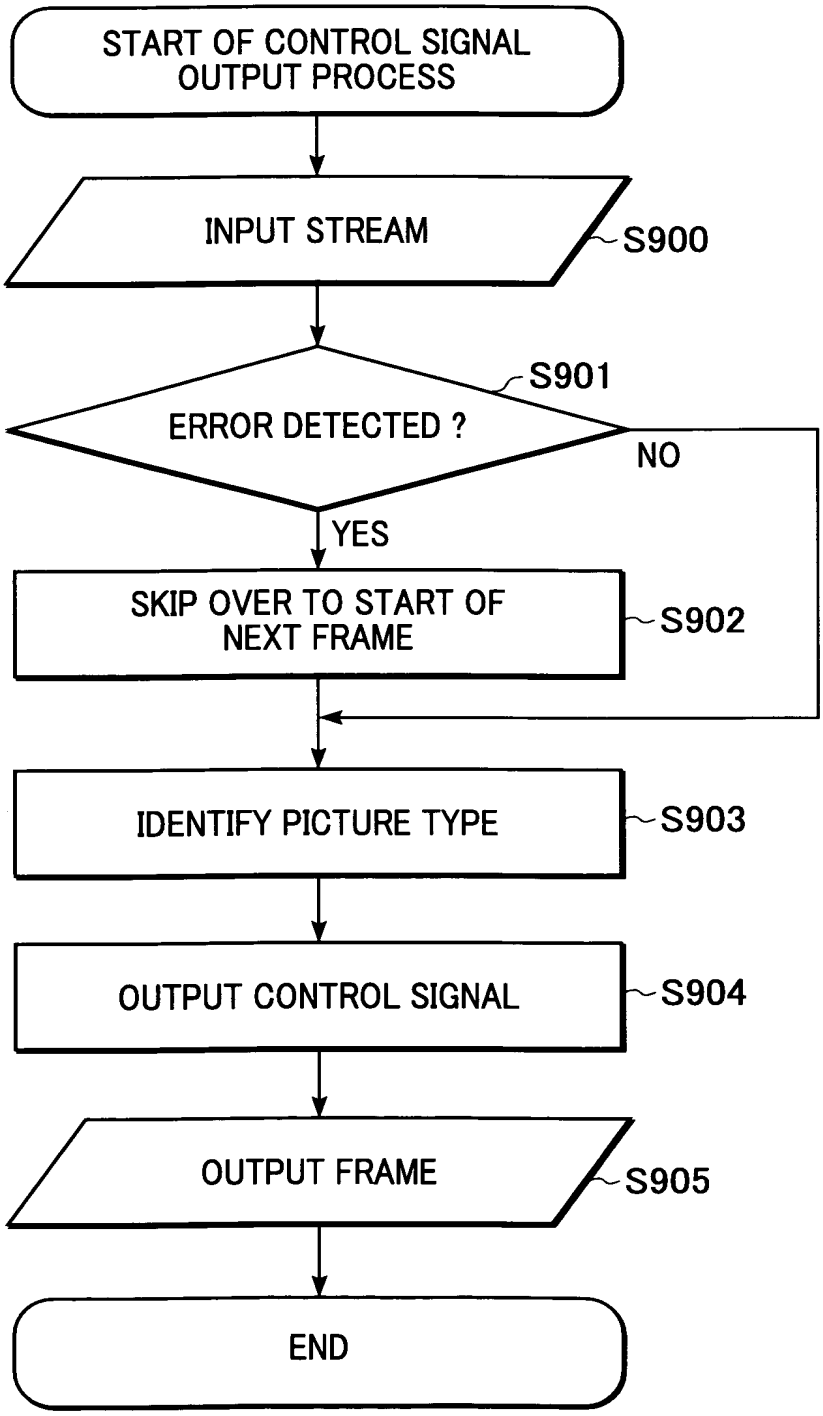

START OF CONTROL SIGNAL OUTPUT PROCESS
INPUT STREAM
S900
S901
ERROR DETECTED ?
NO
YES
SKIP OVER TO START OF NEXT FRAME
S902
IDENTIFY PICTURE TYPE
S903
OUTPUT CONTROL SIGNAL
S904
OUTPUT FRAME
S905
END

FIG. 13

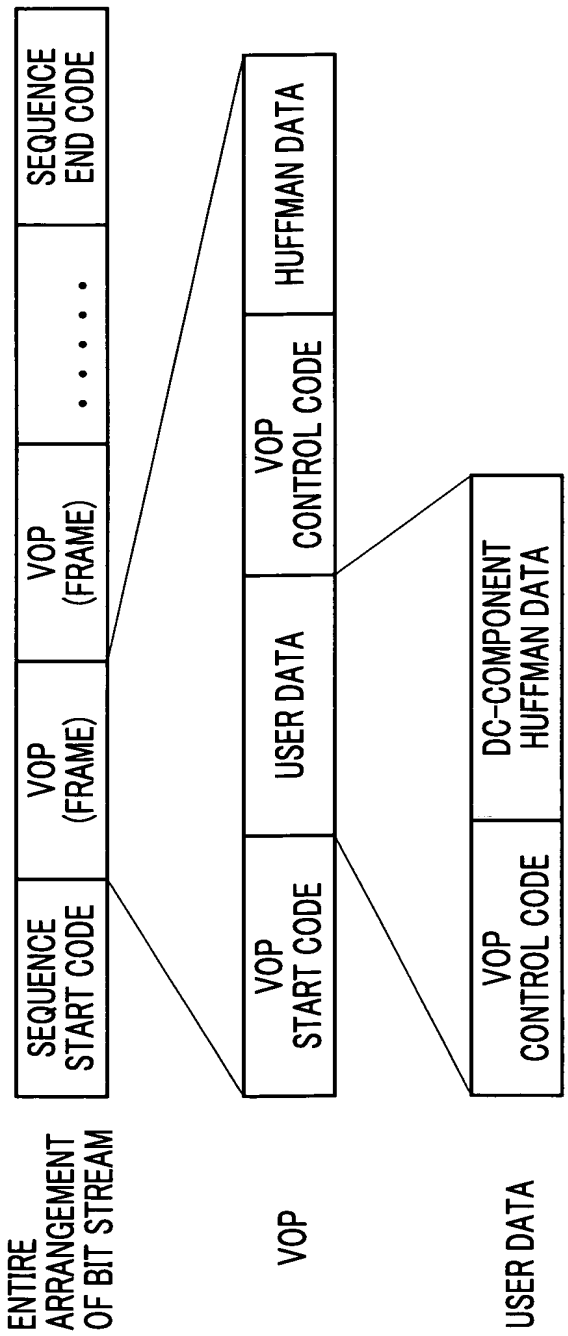

ENTIRE ARRANGEMENT OF BIT STREAM
SEQUENCE START CODE
VOP (FRAME)
VOP (FRAME)
. . . . . .
SEQUENCE END CODE
VOP
VOP START CODE
USER DATA
VOP CONTROL CODE
HUFFMAN DATA
USER DATA
VOP CONTROL CODE
DC-COMPONENT HUFFMAN DATA

FIG. 14

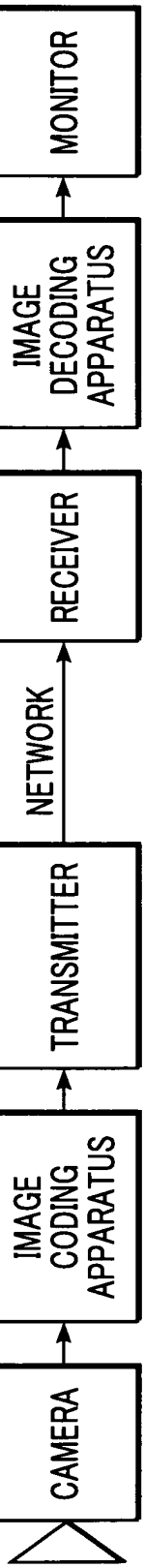

1
CAMERA
2
IMAGE CODING APPARATUS
3
TRANSMITTER
NETWORK
4
RECEIVER
5
IMAGE DECODING APPARATUS
6
MONITOR

FIG. 15

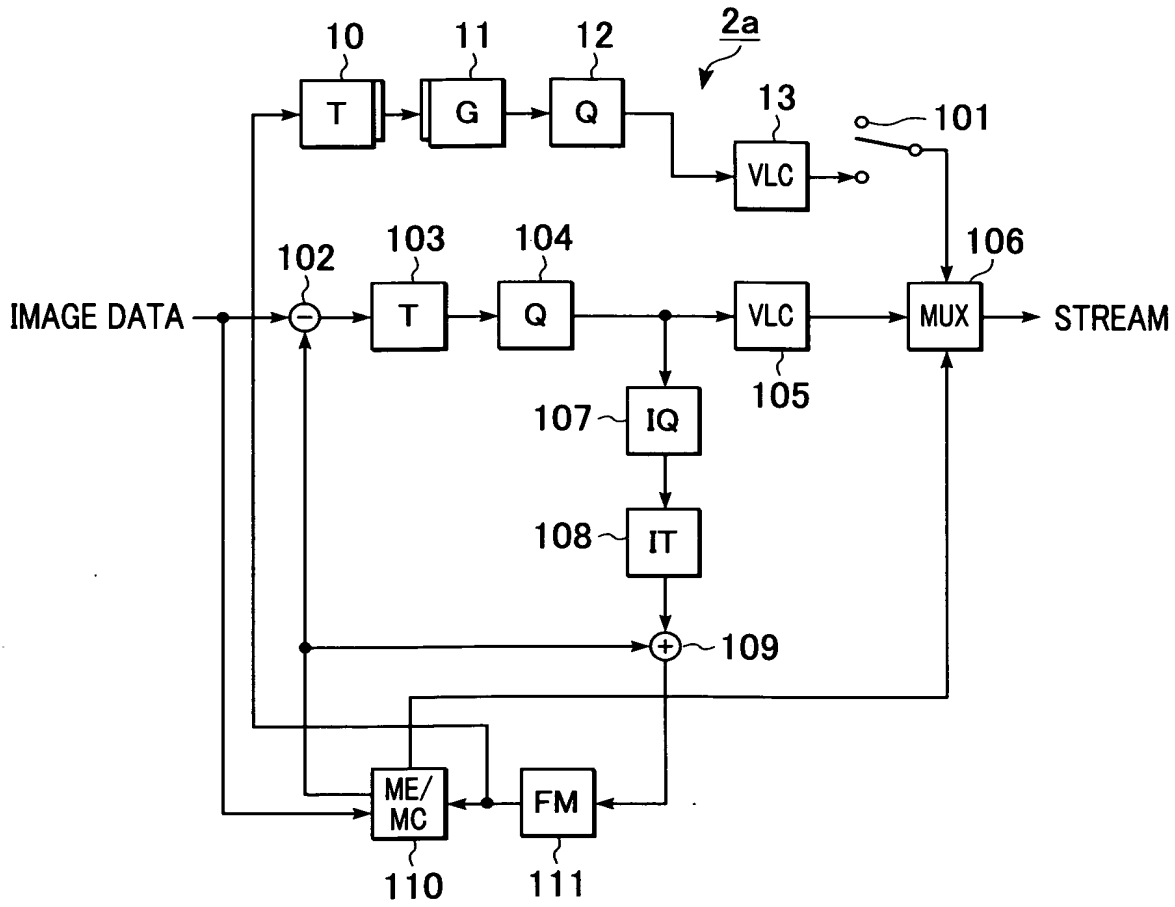

10
11
12
2a
T
G
Q
13
VLC
101
102
103
104
106
IMAGE DATA
T
Q
VLC
MUX
STREAM
105
107
IQ
108
IT
109
ME/
MC
FM
110
111

FIG. 16

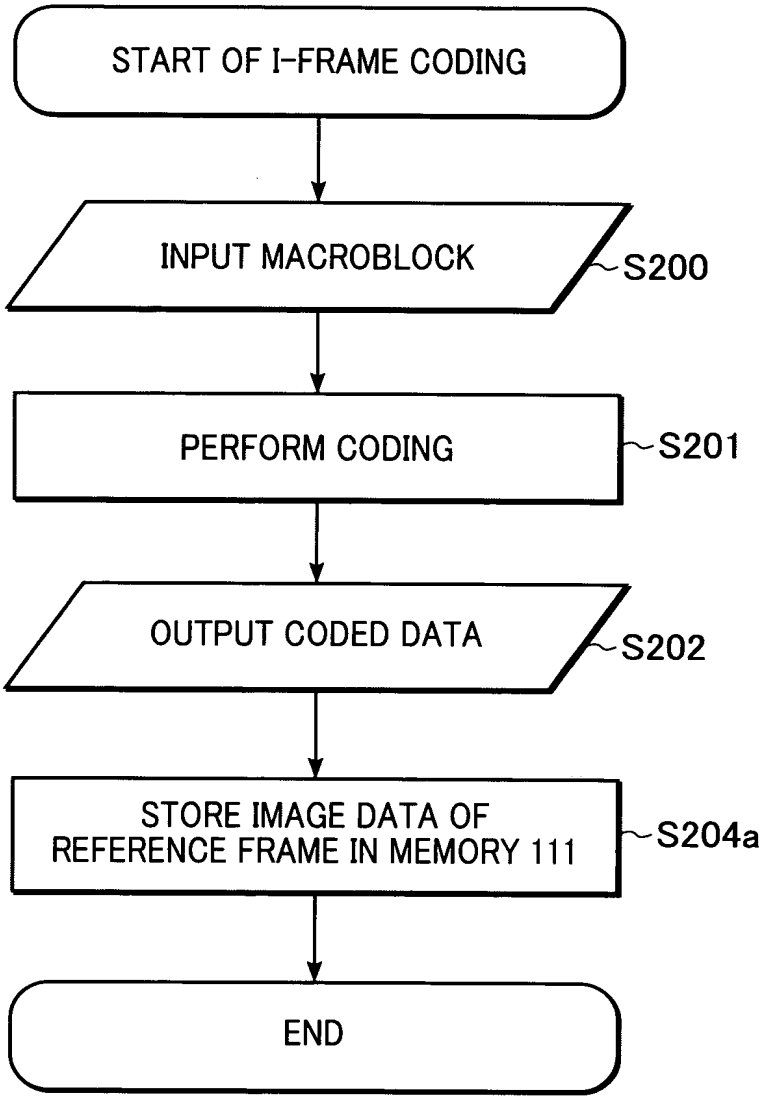

START OF I-FRAME CODING
INPUT MACROBLOCK
S200
PERFORM CODING
S201
OUTPUT CODED DATA
S202
STORE IMAGE DATA OF REFERENCE FRAME IN MEMORY 111
S204a
END

FIG. 17

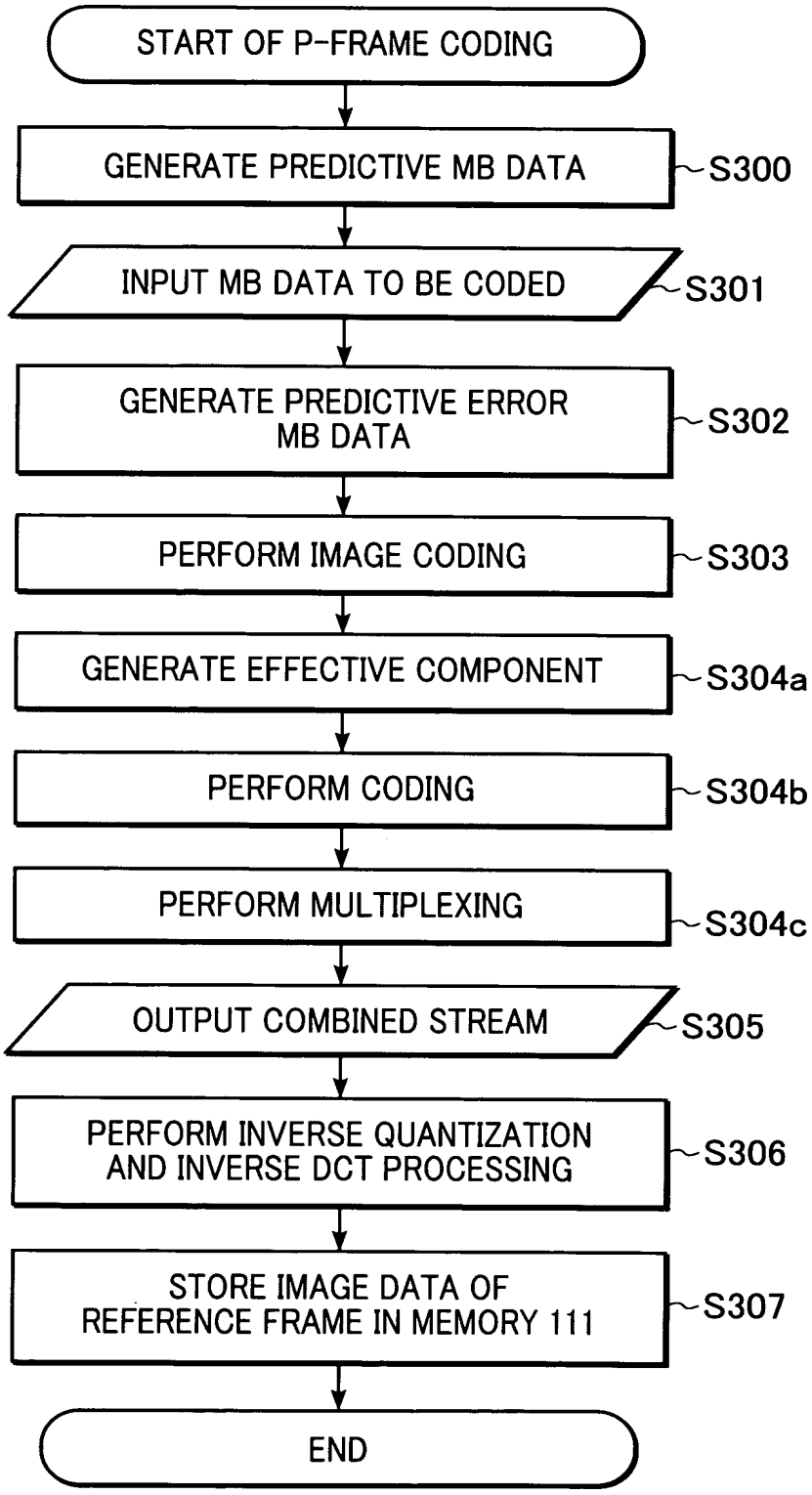
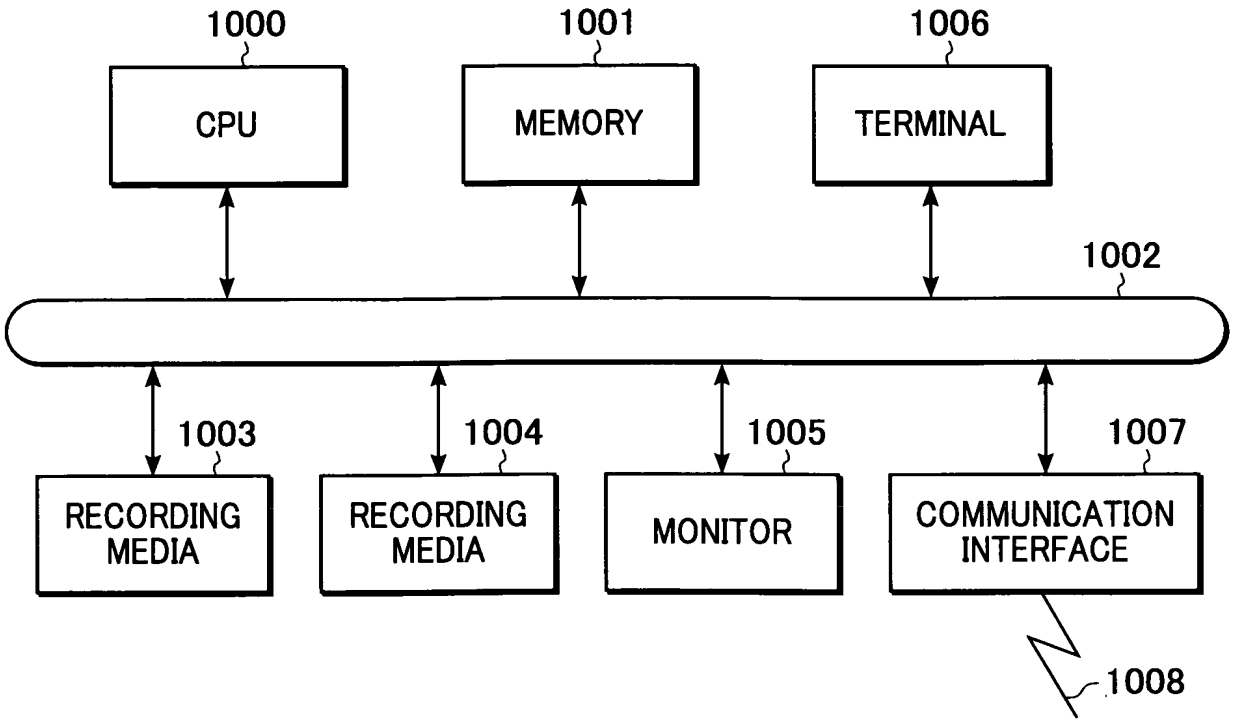

START OF P-FRAME CODING
GENERATE PREDICTIVE MB DATA
S300
INPUT MB DATA TO BE CODED
S301
GENERATE PREDICTIVE ERROR MB DATA
S302
PERFORM IMAGE CODING
S303
GENERATE EFFECTIVE COMPONENT
S304a
PERFORM CODING
S304b
PERFORM MULTIPLEXING
S304c
OUTPUT COMBINED STREAM
S305
PERFORM INVERSE QUANTIZATION AND INVERSE DCT PROCESSING
S306
STORE IMAGE DATA OF REFERENCE FRAME IN MEMORY 111
S307
END

FIG. 18


1000
1001
1006
CPU
MEMORY
TERMINAL
1002
1003
1004
1005
1007
RECORDING MEDIA
RECORDING MEDIA
MONITOR
COMMUNICATION INTERFACE
1008